CLAIMS

1. Apparatus for hardening a coating of an object, more particularly a vehicle body (12), said coating consisting of a material that hardens under electromagnetic radiation, more particularly a UV paint or a thermally hardening paint, having

a) at least one radiator (58, 60a, 60b, 62a, 62b) producing electromagnetic radiation;

b) a conveying system (14, 16, 46) that moves the object (12) to the proximity of the radiator (58, 60a, 60b, 62a, 62b) and moves it away from said radiator again;

characterised in that

the conveying system (14, 16) comprises a lifting truck (46; 46') with a running gear (50), said lifting truck having a lifting platform (54) for receiving the object (12), the height of which lifting platform relative to the running gear (50) can be adjusted by means of a motor, and in that the at least one radiator (58, 60a, 60b, 62a, 62b) is arranged in such a manner that the lifting truck (46; 46') and the object (12) located thereon can be guided through under the at least one UV radiator (58, 60a, 60b, 62a, 62b).

2. Apparatus according to Claim 1, characterised in that the lifting platform (54) is tiltable relative to the running gear (50) by means of a motor.

3. Apparatus according to Claim 2, characterised in that the lifting platform (54) comprises two planes (93, 95) which are separated from one another by at least one length-variable ram (92).

4. Apparatus according to one of the preceding claims, characterised in that it has a container (38) with an opening (15), through which the object (12) can be guided into the container (38) by height adjustment of the lifting platform (54), and in that the interior space of the container (38) can be subjected to electromagnetic radiation by at least one radiator (58, 60a, 60b, 62a, 62b).

5. Apparatus according to Claim 4, characterised in that at least one radiator is fitted in a wall, a ceiling or a floor of the container.

6. Apparatus according to Claim 5, characterised in that at least one radiator is fitted in the opposite side walls running parallel to the translatory movement of the objects and in at least one of the two end walls running perpendicular to the translatory movement of the objects or in a ceiling or a floor of the container.

7. Apparatus according to Claim 5, characterised in that a multiplicity of radiators are arranged on all walls and in a ceiling or a floor of the container.

8. Apparatus according to one of the preceding claims, characterised in that a plurality of radiators (58, 60a, 60b, 62a, 62b) are arranged on a bridge-like portal frame (44) which has two substantially vertical legs and a substantially horizontal base.

9. Apparatus according to Claim 8, characterised in that the arrangement of the radiators (58, 60a, 60b, 62a, 62b) on the substantially vertical legs of the portal frame (44) is adapted to the course of the lateral surfaces of the object (12).

10. Apparatus according to Claim 7 or 8, characterised in that the arrangement of the radiators (58, 60a, 60b, 62a, 62b) on the substantially horizontal base is adapted to the course of the upward-facing surface of the object (12).

11. Apparatus according to one of Claims 4 to 10, characterised in that a protective gas can be supplied to the interior space of the container (38).

12. Apparatus according to Claim 11, characterised in that the protective gas is heavier than air, in particular is carbon dioxide.

13. Apparatus according to Claim 11, characterised in that the protective gas is lighter than air, in particular is helium.

14. Apparatus according to Claim 12 or 13, characterised in that there is an inlet (68a, 68b) for the protective gas in the immediate vicinity of the at least one radiator.

15. Apparatus according to one of the preceding claims, characterised in that at least one radiator (58, 60a, 60b, 62a, 62b) is assigned a movable reflector (66) on the side facing away from the object (12).

16. Apparatus according to one of Claims 4 to 15, characterised in that the container (38) is at least partly lined with a reflective layer.

17. Apparatus according to Claim 16, characterised in that the layer is uneven.

18. Apparatus according to one of Claims 16 and 17, characterised in that the layer consists of an aluminium foil.

19. Apparatus according to one of the preceding claims, characterised in that it has a booth housing (28) which prevents uncontrolled escape of gases and electromagnetic radiation.

20. Apparatus according to Claim 19, characterised in that a lock (34, 36) for the object (12) is respectively provided at the inlet and at the outlet of the booth housing (28).

21. Apparatus according to Claim 20, characterised in that an inlet for protective gas is arranged within the inlet-side lock (34) in such a way that a hollow space present in the object (12) is flushed with a protective gas.

22. Apparatus according to Claim 20 or 21, characterised in that a device (42) for removing oxygen from the atmosphere situated within the booth housing (28) is provided.

23. Apparatus according to Claim 22, characterised in that the device (42) for removing oxygen has a catalyst for catalytically binding the oxygen.

24. Apparatus according to Claim 22 or 23, characterised in that the device (42) for removing oxygen has a filter for absorbing oxygen.

25. Apparatus according to one of Claims 22 to 24, characterised in that the device (42) for removing oxygen has a filter for adsorbing oxygen.

26. Apparatus according to one of the preceding claims, characterised in that it has a preheating zone (18) for removing the solvent from the material of the coating.

27. Apparatus according to one of Claims 1 to 25, characterised in that it has a preheating zone (18) for partial gelling of pulverulent material.

28. Apparatus according to one of the preceding claims, characterised in that it has a post-heating zone (22) for completing the hardening.

29. Apparatus according to one of the preceding claims, characterised in that the apparatus comprises a control system (90) which controls the height of the lifting platform (54) in dependence on the upward-facing outer contour of the object (12).

30. Apparatus according to Claim 29, characterised in that the height of the lifting platform (54) can be changed by the control system (90) in such a way that, during a conveying movement of the object (12) past the at least one radiator (58, 60a, 60b, 62a, 62b), the amount of electromagnetic

radiation striking the material per unit area, and the intensity thereof, in each case does not fall below predeterminable threshold values required for hardening.

31. Apparatus according to Claim 30, characterised in that the height of the lifting platform (54) can be changed by the control system (90) in such a way that, during a conveying movement of the object (12) past the at least one radiator (58, 60a, 60b, 62a, 62b), the distance in the vertical direction (49) between the object (12) and the at least one radiator (58, 60a, 60b, 62a, 62b) remains at least approximately constant.

32. Apparatus according to Claim 30 or 31, characterised in that the control system (90) comprises a memory (91) for storing three-dimensional shape data of the object.

33. Apparatus according to one of Claims 29 to 32, characterised in that the apparatus comprises a measuring station (80) which is arranged upstream of the at least one radiator (58, 60a, 60b, 62a, 62b) in the conveying direction (48) and by which three-dimensional shape data of the object (12) can be acquired.

34. Apparatus according to Claim 33, characterised in that the measuring station comprises at least one light barrier.

35. Apparatus according to Claim 33 or 34, characterised in that the measuring station comprises a video camera and a device for digital image recognition.

36. Apparatus according to one of Claims 33 to 35, characterised in that the measuring station (80) comprises at least one optical scanner (82), by which the object (12) can be scanned at least in one direction.

37. Apparatus according to Claim 36, characterised in that the optical scanner (82) comprises an infrared light source.

38. Apparatus according to one of the preceding claims, characterised in that the conveying system (14, 16, 46) comprises specifically a lifting truck (46) and a travelling path (56) for the lifting truck (46), along which path the at least one radiator (58, 60a, 60b, 62a, 62b) is arranged, and in that a receiving station for receiving the object (12) on the lifting platform (54) and a delivery station for delivering the object (12) spatially coincide.

39. Apparatus according to one of Claims 1 to 37, characterised in that the conveying system (14, 16, 46) comprises at least two lifting trucks (461, 462) and in that, between a receiving station for receiving the object (12) on the lifting platform (54) and a delivery station for delivering the object (12), two travelling paths (561, 562) for the lifting trucks (461, 462) extend in such a way that the lifting trucks (461, 462) can circulate in a closed circuit between the receiving station and the delivery station.

40. Apparatus according to one of the preceding claims, characterised in that the electromagnetic radiation is UV light.

41. Apparatus according to one of the preceding claims, characterised in that the electromagnetic radiation is IR radiation.